DOCUMENT RESUME

ED 438 273 SP 039 022

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TITLE Cooperative Learning as a Form of Active Learning in Dutch Primary Schools.
PUB DATE 1999-08-00
NOTE 26p.; Paper presented at the Biennial Meeting of the European Association for Research on Learning and Instruction (8th, Goteborg, Sweden, August 24-28, 1999).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Active Learning; *Cooperative Learning; Elementary Education; Foreign Countries; Group Dynamics; *Group Instruction; Student Attitudes; Teacher Attitudes; Teaching Methods
IDENTIFIERS Netherlands

ABSTRACT

This study examined teachers' use and evaluation of cooperative learning along with students' reactions to cooperative grouping and the quality of the group cooperation in a sample of Dutch primary school teachers who implemented cooperative learning methods. Data collection involved teacher questionnaires, student questionnaires, and observation. Teachers reported that cooperative learning occurred in their classrooms about four times a week. They reported improvement in social skills, on-task behavior, and student self-esteem as a result of having students work in groups. The students reported a positive attitude toward cooperative group learning and rated their work in groups as effective. About half of the teachers reported problems with monitoring the cooperative groups. Observations showed the time-on-task levels of students working in groups to be high, but effective learning and cooperation was not promoted. The teachers devoted little time to teaching groupwork skills. In general, the implementation of cooperative grouping was found to lack the features recommended in the literature for effective cooperative learning. (Contains 30 references.) (Author/SM)

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ED 438 273

Cooperative Learning as a Form of Active Learning in Dutch Primary Schools

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Paper presented at the Biennial Meeting of the
European Association for Research on Learning and Instruction

Göteborg, Sweden, August 24-28, 1999

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ABSTRACT

This study examined teachers' use and evaluation of cooperative learning along with pupils' reactions to cooperative grouping and the quality of the group cooperation in a sample of Dutch primary school teachers who implemented cooperative learning methods. Teachers reported that cooperative learning occurred in their classrooms about four times a week. Teachers reported social skills, on-task behaviour, and pupil self-esteem to improve as a result of having pupils work in groups. The pupils reported a positive attitude towards cooperative group learning and rated their work in groups as effective. About half of the teachers reported problems with the monitoring of the cooperative groups. Observations showed the time-on-task levels of the pupils working in groups to be high, but effective learning and cooperation to not be promoted. The teachers devoted little time to the teaching of groupwork skills. In general, the implementation of cooperative grouping was found to lack the features recommended in the literature for effective cooperative learning.

Introduction

The development of the capacity for autonomous life-long learning calls for a special kind of learning, which is often called "active learning." The importance of active learning has recently been affirmed in a publication from the Dutch governmental committee responsible for the formulation of the guidelines for the restructuring of secondary education in The Netherlands (Stuurgroep Profiel Tweede Fase Voortgezet Onderwijs, 1994). The pedagogical and organizational changes that this committee proposes are summarised by the concept of "the school as a study house." This includes the notions of self-regulated learning, interactive teaching and learning, and the active participation of students in the achievement of learning outcomes. Improvement of the quality of student study and active student learning will be the central principles for the reorganisation of secondary education in The Netherlands in the years to come.

Although all learning is active in nature, some kinds of learning are more active than others. According to Simons (1997), active learning at school means that students use opportunities to decide about aspects of the learning process (such as selecting realistic learning goals; selecting, modifying, and implementing appropriate learning strategies; motivating one's self for learning; evaluating one's own performance; consulting others). One is also actively involved in such thinking activities as comprehension, integration, testing, elaboration, and reflection.

Active learning is not only important for students but also for teachers. The motivational and burn out problems of teachers may disappear when students are more motivated and more active learners. Moreover, teaching becomes more intellectually challenging when students learn actively and independently (Simons, 1997).

Current cognitive conceptions of both learning and instruction also emphasize the active nature of learning. According to Shuell (1988; 1996), learning is an active, constructive, and self-regulated process. Such an approach also stresses the social nature of learning; teaching and learning are both conceived as a social process of communication and social interaction is assigned a central role in the facilitation of learning. Learning is optimised in settings where the social interaction between a learner and more knowledgeable others is encouraged and where cooperatively achieved success is a major aim (Bennett & Dunne, 1992).

Active learning is closely related to cooperative learning as cooperative learning always

incorporates principles of active learning. In principle, active learning can exist with students working entirely on their own but, in practice, active learning almost always incorporates some form of cooperative action (Slavin, 1997). The reports of active learning presented from eight OECD countries also describe forms of cooperative learning (cf. Stern & Huber, 1997).

In the present paper, teachers' use and evaluations of cooperative learning as a form of active learning are examined, along the quality of the cooperation and students' reactions to cooperative grouping in a sample of Dutch primary schools. Before we present the design and results of the study, the concept of cooperative learning will be considered in greater detail.

Cooperative Learning

Cooperative learning (CL) refers to any of a variety of teaching methods in which students work in small groups to help one another learn academic content. In cooperative classrooms, students are expected to help each other, discuss and argue with each other, assess each other's current knowledge, and fill any gaps in each other's understanding. Cooperative learning often replaces individual seatwork, individual study, and individual practice but not direct instruction by the teacher. When properly organised, students in cooperative groups make sure that everyone in the group has mastered the concepts being taught (Slavin, 1995).

In numerous school-based experiments over the past two decades, the effectiveness of cooperative learning methods for the promotion of student learning and social relations relative to more traditional whole-class methods of teaching has been demonstrated (Cohen, 1994; Johnson & Johnson, 1989; Sharan, 1994; Slavin, 1995). Research has also shown active learning to clearly facilitate student achievement and improved social relations between students (Slavin, 1997).

According to Slavin (1995), CL has entered the mainstream of educational practice for a number of reasons. First, the overwhelming amount of research showing the use of CL to improve student achievement and such other outcomes as intergroup relations, acceptance of handicapped classmates, and increased self-esteem. Second, the growing realization that students must learn to think, solve problems, integrate their knowledge, and apply their skills; CL is an excellent means for doing this. Third, CL can help make diversity in heterogeneous classes a resource rather than a problem. As schools are moving away from homogeneous ability grouping with its negative effects on student achievement towards more heterogeneous

grouping, CL is growing in importance. Fourth, CL has been found to positively influence the social relations with students of different ethnic backgrounds and mainstreamed special education students and their classmates (Slavin, 1995). Moreover, academically handicapped students in cooperative primary schools also obtain significantly higher achievement scores in reading and mathematics when compared to similar students in traditional primary schools (Stevens & Slavin, 1995). Fifth, CL clearly fits with current conceptions of learning as a social, cultural, and interpersonal constructive process governed as much by social and situational factors as by cognitive ones (Shuell, 1996).

In a comprehensive review of the effects of CL, Slavin (1995; 1996) concludes that CL is most effective when the groups are recognized or rewarded on the basis of the individual learning of the members. Group goals and individual accountability stimulate students to help each other and encourage maximum effort. Studies of CL methods incorporating group goals and individual accountability show a much higher median effect size than studies of other methods. The median effect size across 52 studies including group goals and individual accountability was +.32 and only +.07 across 25 studies not including group goals and individual accountability.

Another characteristic of CL related to its effectiveness is the heterogeneity of the group members (Bennett & Dunne, 1992; Johnson & Johnson, 1994; Slavin, 1995). Research has shown effective CL groups to include high-, medium-, and low-ability students working together. Low- and medium-ability students clearly benefit from working cooperatively with high-ability peers. There is also evidence that the high-ability students are better off academically when cooperating with medium- and low-ability peers rather than working alone. Working in heterogeneous groups may benefit low-ability students because they are able to observe the strategies of high-ability students. Similarly, high-ability students may learn new strategies by teaching other students in the group. Examination of the behaviours within groups that relate most to gains in achievement consistently show students who provide explanations (and less consistently, those who receive such explanations) to be those students who learn the most in CL situations. In contrast, giving or receiving answers without explanations generally reduces achievement (Webb, 1992; Webb & Farivar, 1994).

Basic Elements of Cooperative Learning

Simply placing students in groups and telling them to work together does not in and of itself produce a cooperative effort. There are many ways in which such unstructured group efforts can go wrong. Seating students together can produce mutual competition or individualistic learning. According to Johnson and Johnson (1994), teachers must understand the nature of cooperation and the essential components of a well-structured cooperative lesson in order to effectively use CL. Teachers with real expertise in the use of CL structure five essential components into their instructional activities: (1) positive interdependence, (2) individual accountability, (3) face-to-face promotive interaction, (4) social skills, and (5) group processing (Johnson & Johnson, 1994). *Positive interdependence* means that students see themselves as linked to others in such a manner that they cannot succeed unless their groupmates succeed. The students must really believe that they sink or swim together. Positive interdependence promotes a situation in which students work together in small groups to maximize the learning of all members, share their resources, provide mutual support, and celebrate their joint success. Positive interdependence is at the heart of CL. Once teachers establish positive interdependence, they must see that the students actually interact to help each other. Students are expected to discuss what they are learning, explain to each other how to solve the assigned problems or complete the assignments, and provide each other with help, assistance, support, and encouragement.

Individual accountability exists when the performance of each individual student is assessed and the results are reported to the group and the individual. It is important that the group members know that they cannot "hitch-hike" on the work of others. To obtain meaningful *face-to-face interaction*, the size of the groups must be small (two to four members). Contributing to a cooperative effort also requires certain *interpersonal and small-group skills*. Often, the students must be taught the social skills for high quality collaboration and be motivated to use these skills. *Group processing* exists when group members discuss their progress towards the achievement of their goals and the maintenance of effective working relations. Some of the keys to successful group processing are allowing sufficient time for it to occur and making the processing specific rather than vague (Johnson & Johnson, 1994).

Given the substantial body of research demonstrating the positive effects of CL, CL methods are not commonly used in Dutch primary schools where learning is considered primarily an individualistic enterprise.

In a comprehensive study, Ros (1993a,b, 1994) examined the use of peer work groups in Dutch classroom practice. About 20% of Dutch primary school teachers reported the use of peer work groups: 8% used work groups in which students were allowed to cooperate; 6% used word groups in which students should cooperate but make a product (solution or paper) individually; and 6% used work groups in which students should cooperate to achieve one (group) product together.

Observations in both Dutch multigrade and single-grade classes have also shown students to rarely be actively engaged in learning directly from one another. When entering a multigrade or single-grade class, one might assume from the physical seating arrangements that some form of CL takes place, but essentially each student works and achieves alone within the group setting. The dominant pattern of classroom organization is whole-class instruction (Veenman, Voeten, & Lem, 1987). In other words, students worked *in* but not *as* groups.

Purpose of the Present Study

Several questions remain unanswered about the implementation of CL in schools. The first question is whether classroom teachers design their cooperative group activities to promote positive learning outcomes. There are limited data concerning the degree to which teachers implement what Slavin (1995), Johnson and Johnson (1994), and others have identified as the most effective features of CL groups, such as group goals, individual accountability, positive interdependence, face-to-face promotive interaction, social skills, and group processing. Second, there is limited information regarding both teachers' and students' perceptions of CL. Little is known about how teachers and students view CL. Third, there is very few observational data on the nature and frequency of interactive behaviour among students during CL.

In the present study, we therefore address these three issues (cf. McManus & Gettinger,

1996). Our first goal was to obtain information from teachers with regard to their use and perceptions of CL. Our second goal was to obtain reactions from students with regard to working in cooperative groups. Our third goal was to directly observe the interactive behaviours that occur among students during CL activities.

Methods

Participants

The present study utilized three participant samples. The first sample included 69 teachers (grades 1 to 8) from 7 primary schools located in suburban areas in the centre and south of The Netherlands. These schools were populated by students from diverse cultural backgrounds and socioeconomic status but contained few students from ethnic minority groups. Five of the schools were referred to us by the regional school advisory services, which provide school guidance, assistance, and staff development activities for primary schools and are well acquainted with the instructional practices of the primary schools in their regions. According to the school advisory services, these schools applied CL methods. The other two schools were selected from the mailing list from the Christian Pedagogical Study Centre (CPS) as they had previously ordered a teacher's manual on CL from the centre and tried to implement CL methods. From this sample of 69 teachers, 33 teachers taught in the lower grades (grades 1-4, including grades 1-2 as kindergarten grades); 17 teachers taught in the intermediate grades (grades 5-6); 16 teachers taught in the higher grades (grades 7-8); and three teachers forgot to indicate the grade-level of their class. The average number of years teaching was 17 (SD = 8.5). On average, each class had 26 students (SD = 6.1). The teachers in this sample participated in the teacher survey phase of the study.

The second sample included 363 students (46% boys and 54% girls; grades 4-8) from the five schools referred for use of CL in the first sample. The students in this second sample participated in the student survey phase of the study.

The third sample included 29 classrooms (grades 1-8) from the five schools referred for use of CL in the first sample. From these five schools, at least three different classrooms were observed during cooperative activities. Of the observations, nine were conducted in the lower grades, eight in the intermediate grades, and 12 in the higher grades.

Instruments

Three measures across the three phases of the study were used. In phase 1, a questionnaire entitled Teacher Perceptions of Cooperative Learning was administered to the teachers. In phase 2, a questionnaire entitled Student Perceptions of Cooperative Learning was administered to the students. In phase 3, an observational system was used to code student behaviour during CL lessons.

Teacher questionnaire. The Teacher Perceptions of Cooperative Learning (TPCL) questionnaire contained five sections. The first section asked the teachers to provide general background information including (1) number of years teaching, (2) number of students in the class, (3) frequency with which they used cooperative groups, and (4) content areas for which cooperative grouping was used.

The second section of the questionnaire asked teachers to evaluate outcomes possibly related to CL. The items in this section were based on previous research that has shown improved academic outcomes and social skills, greater personal attraction, more positive attitudes towards content areas, and improved self-esteem as a result of CL (Johnson & Johnson, 1994; Slavin, 1995, Abrami et al., 1995).

The third part of the questionnaire asked teachers to indicate if they felt competent to implement CL in their classrooms. Questions were also directed at the support that teachers receive from peers and parents in the establishment of CL groups.

The fourth part of the questionnaire asked teachers about the structural features of CL including the use of task and reward structures and various grouping procedures. More specifically, the teachers were asked to rate the degree to which they used group study or task specialization and the degree to which they used individual rewards for individual performance, group rewards for group performance, or group rewards based on the performance of each individual student in the group. The teachers were also asked to rate the degree to which they used forms of heterogeneous grouping, student-selected groups, and the size of the cooperative groups.

In the fifth and final section of the questionnaire, the teachers were asked to rate specific organizational problems connected with the use of cooperative grouping. The items in this section of the questionnaire referred to the extra preparation time needed for CL, the degree to which current textbooks offer suggestions for the tailoring of specific subject matter to CL,

problems with the effective monitoring of cooperative grouping, and problems with the noise level in the classroom during cooperative activities.

Many of the items on the teacher questionnaire were derived from the work of McManus and Gettinger (1996), Ros (1994), and Stodolsky (1984). For all of the items, use was made of a five-point scale ranging from 1 (*not at all*) to 5 (*to a very large degree*).

Student questionnaire. The Student Perceptions of Cooperative Learning (SPCP) questionnaire for students from grades 4 to 8 was developed to gather information concerning students' preferences for learning in groups, the potentially positive and negative outcomes of CL, and other aspects of CL. This short questionnaire was mainly based on the questionnaire administered by Ros (1994) to a random sample of Dutch primary classes. On conceptual grounds, two subscales were formed. The first scale was *positive attitudes towards CL.* Students indicated for six items their attitudes concerning cooperative group work on a three-point Likert scale. The items ranged from 1 (*not so nice*) to 3 (*very nice*). The Cronbach alpha for this subscale was .62. The second subscale was *effective group interaction.* Students indicated on a three-point Likert-scale just how true eight statements concerning mutual cooperation and interaction were for them. These statements ranged from 1 (*never*) to 3 (*always*). The Cronbach alpha for this subscale was .52. The overall Cronbach alpha for the student questionnaire was .68. Given that the internal consistency of the two subscales was not very high, the results per item or statement will also be presented.

Direct observation. Interactive behaviours during groupwork were examined by observing one cooperative group of students during a CL lesson. This group was randomly selected. To assess the quality of the group cooperation, the "Dimensions of Cooperation Scale" was used as developed by Ros (1993b, 1994). For the purposes of the present study, the variable "stimulation" was subdivided into two variables, namely cognitive stimulation and social stimulation. The seven variables in this observation instrument were defined as follows. *Argumentation* refers to the degree to which students generate and discuss ideas. *Division of work* refers to the degree to which students divide their tasks. *Listening* refers to the degree to which students listen to each other and absorb each other's ideas. *Cognitive stimulation* refers to the degree to which students cognitively stimulate each other to carry out their work and provide opinions (content-related helping behaviours). *Social stimulation* refers to the degree to which students stimulate each other to socially participate in group interactions by providing encouragement and support (cooperation-related helping behaviours). *Climate*

refers to the degree to which students behave in a relaxed manner and express their feelings or opinions. *Decision making* refers to the degree to which the decision-making process is democratic. Observers rated their observations along a four-point Likert scale ranging from 1 (low) to 4 (high). The Cronbach alpha for this scale was .73.

Prior to the collection of the observational data, the two observers went through a training program consisting of about 40 hours. Inter-observer reliability checks based on the live coding of eight CL lessons conducted at two schools not involved in the study were performed using analysis of variance (Winer, 1971) for the separate variables and found to range from .74 to 1.00 (median .93).

The observers not only coded the interactive behaviours of the students but also took notes on what happened and what was said within the observed cooperative group. After each observed CL lesson, a summary of the activities occurring in the classroom and the cooperative group was written.

The observers also rated the time-on-task levels for all of the students in the cooperative classroom. Every 10 minutes during the cooperative activities, the observer stopped taking notes and recorded the number of students engaged in academic activities (on-task). An on-task score for the entire class was then obtained by dividing the number of students engaged in the cooperative task by the total number of students. The inter-observer reliability for the on-task checks was estimated using analysis of variance (Winer, 1971) and revealed a coefficient of .84.

Results

Teacher Evaluations of Cooperative Learning Outcomes

The teachers rated the degree to which aspects of student performance improved when students worked cooperatively in groups. Table 1 contains a summary of these ratings. As can be seen, a clear majority of the teachers (88%) believed that social skills improved as a result of having students work in groups. In addition, about 60% of the teachers believed that on-task behaviour and self-esteem improved. With regard to such learning outcomes as student achievement, acceptance of students with special needs, and improved attitudes towards content, the teachers are less outspoken in their beliefs: about one-third of the teachers

believed that having students work in groups clearly improves their learning outcomes; about 50% of the teachers believed that groupwork moderately improves learning outcomes. Only 16% of the teachers believed that the degree of acceptance of ethnic minority students improved as a result of having students work in groups.

Teacher Use of Cooperative Learning

Most of the teachers reported infrequent use of CL in their classrooms; 69% of the teachers reported not using CL very often. The answers ranged from "twice a month" to "two times a year." Some of the teachers failed to specify the frequency of CL use and simply noted: "it depends on the students" or "it depends on the curriculum materials." Of those teachers frequently using CL in their class, 22% of the teachers reported use of CL several times a week and 9% reported use of CL once a week.

Mathematics, spelling, and reading were the content areas for which CL was used most frequently: 81% of the teachers reported use of CL for math activities, 62% for spelling activities, and 45% for reading activities.

Table 2 contains a summary of the teacher ratings with regard to the structural features of CL: reward structure, task structure, and grouping procedures. Of the three types of reward structures, group rewards for individual contributions received the lowest rating when compared to individual rewards for individual performance and group rewards for group performance. About 60% of the teachers used group rewards for a group product, and a clear majority of the teachers (80%) do not provide group rewards based on the individual learning of the group members

In terms of task structure, group study with group product was used slightly more frequently than task specialization (M = 3.13 and M = 3.06, respectively). About 70% of the teachers used both forms of task structure when they used cooperative grouping. Positive interdependence can be promoted by not only goal interdependence but also by resource and role interdependence (Johnson, Johnson, & Holubec, 1994). Resource interdependence refers to the pooling of resources to achieve a goal as each group member has only a portion of the resources, information, or materials necessary to complete the given task. Role interdependence involves the creation of complementary and interconnected roles that specify the responsibilities required for the group to complete the joint task (e.g., reader, recorder,

checker of understanding). Role interdependence was used slightly more frequently than resource interdependence (M = 2.3 and M = 2.2, respectively), but almost 70% of the teachers reported little or no use of these forms of positive interdependence for group work in their classrooms.

Of the four forms of heterogeneous grouping, heterogeneous grouping by gender received the highest rating (M = 3.9), followed by heterogeneous grouping by social skills (M = 3.6), heterogeneous grouping by ability (M = 3.5), and heterogeneous grouping by ethnicity (M = 2.4). Grouping by gender is the most frequently used form of grouping students for groupwork; 71% of the teachers used this form of grouping. Grouping by ethnicity is the least frequently used form of grouping; only 29% of the teachers used this form of grouping. As the response categories were not mutually exclusive, combinations of heterogeneous grouping were also possible (e.g., grouping by gender, ability, and social skills).

When groups are formed for cooperative work, most of the groups are formed by the teacher. More than 80% of the teachers did not allow students to select their own groups for cooperative work. For groupwork, the majority of the teachers reported the use of two-member groups (64%), although three-to-four-member groups were also reported (55%).

Work Group Management and Received Support

In organizing cooperative grouping in their classrooms, 54% of the teachers reported problems with the effective monitoring of the work groups. Neither extra time for the arrangement of desks and chairs nor off-task behaviour during cooperative work constituted a serious problem for 90% and 77% of the teachers. Only a small number of teachers encountered problems with extra time for the selection and preparation of materials for cooperative group work (17%) and the noise level during group work (23%).

About 80% of the teachers reported never or only rarely receiving positive parental reactions to having students work in cooperative groups. About one-third of the teachers reported extensive support from colleagues and an intense exchange of ideas with regard to groupwork; about one-third of the teachers reported moderate support from colleagues, a moderate exchange of ideas on cooperative grouping, and textbooks not very suited to cooperative groupwork.

Student Evaluations

Table 3 contains the results of the Student Perceptions of Cooperative Learning questionnaire. In the first part of the table, the students attitudes towards CL are summarized. The mean score on the subscale "positive attitudes towards CL" shows that the students like to work in groups (M = 2.2). The majority of the students found it nice or very nice to work with other students on a task (93%), receive help from other students (84%), hear what other students think (84%), and explain things to other students (77%). No significant differences were found between girls and boys in this respect.

In the second part of Table 3, the students opinions with regard to effective group interaction are summarized. The mean score on this subscale shows the students to rate their work in groups as effective (M = 2.3). More specifically, the students rate the division of tasks, the cooperation, their listening skills, the provision of compliments to other group members, and their efforts during cooperation very positively (all means above 2.0). Only 2% of the students reported frequent problems when working together in groups. Once again, no significant differences were found between girls and boys.

Observed Behaviours

Quality of cooperation. In Table 4, the ratings of the observers using the Dimensions of Cooperation Scale to assess the quality of the cooperation between the students when working in groups are presented. The overall score on the scale shows the quality of the cooperation to be rated just below "moderate" (M = 1.9). Of the seven dimensions of cooperation, cognitive stimulation, social stimulation, and argumentation received the highest ratings, which were moderate or just above moderate. The quality of the other four dimensions was rated just above low or low: division of work, listening, climate, and decision making.

From the narrative records, the following picture emerged. Most of the work in the cooperative groups was dominated by one or two students who made the decisions and divided the work while the other students listened and accepted their decisions. The students did not listen very well to each other; they regularly interrupted each other and they often did not react to each others ideas or suggestions. The climate was not very cooperative; the students squabbled regularly with each other. The students did not elaborate their solutions for

problems or answers to questions and did not, thus, help the children in the group understand the reasoning behind their responses. Expressions of support and acceptance, paraphrasing another member's contribution, and concern for equal participation were infrequent. The group members also did not stimulate each other cognitively; did not help each other when a member of the group did not understand a particular answer or solution; and did not ask for help or clarification of what was said or done in the group.

Time-on-task. Despite the low to moderate quality of the cooperation in the cooperative groups, the time-on-task level for the students was high. About 90% of the students were classified as on- task during the first 30 minutes of working in a group.

Discussion

In this study, we examined teachers' and students' perceptions of CL along with teachers' and students' behaviour during cooperative activities in a sample of Dutch primary schools. Studies by Ros (1994) and Veenman, Voeten, and Lem (1997) have shown cooperative grouping to not be frequently used in Dutch classrooms. Furthermore, very little is known about the specific use of cooperative grouping when, indeed, used in Dutch primary schools. In the present study, only those schools recommended by the regional school advisory services for using cooperative methods were selected for the study. All of the schools thus had experience with the implemention of CL for one or two years with the exception of one school that had years experience.

Although the effectiveness of CL has been demonstrated in research, teachers' and students' evaluations of CL have yet to be documented. Such information is nevertheless important because as the success of any instructional method will likely be influenced by the teachers' perceptions of its effectiveness. Similarly, students are more likely to engage in and benefit from instructional methods that they perceive as rewarding and positive for their learning (McManus & Gettinger, 1996). In the present study, teachers attributed social benefits in particular to working in groups. They also identified increased self-esteem on the part of students as a positive outcome of having students work in groups. In addition, teachers reported greater on-task behaviour, more positive attitudes towards school subjects, and greater student achievement as a result of working in groups. The reported positive effects on

student on-task behaviour is supported by the observations of the cooperative behaviours of the students when working in groups. On average, 90% of the students were rated on-task when working in groups. Students also showed a positive attitude towards working in groups and rated the group interaction quite positively. In general, the teacher and student perceptions in the present study accord well with the positive outcomes of previous research (Antil et al., 1998; Johnson, Johnson, & Holubec, 1994; Kagan, 1994; McManus & Gettinger, 1996; Slavin, 1995).

Certain structural features including an interdependent reward/task structure and heterogeneous grouping have been linked to the effectiveness of CL (Johnson, Johnson, & Holubec, 1994; Slavin, 1995). The extent to which teachers actually implement these particular features, however, is not as clear yet. In the present study, teachers indicated that they were less likely to administer group rewards based on the individual learning of the group members and more likely to administer rewards either to the whole group based on the group product or individual students based on their individual contributions. In this light, it should be noted that group rewards based on a single group product or individual contributions may provide little or no incentive for students to help each other. If group rewards are based on a single group product, there is little incentive for group members to explain concepts to one another and one or two group members may thus be left to do all the work (Slavin, 1995; 1996). Low-achieving students may also not have the chance to participate when academically strong students assume control of the group (Bennett & Dunne, 1992). When rewards are given to individuals, students will not be interested in the acquisition of knowledge by the other members of the group. In an individualistic reward or goal structure the goal-oriented efforts of one individual have little or no consequences for the goal attainment of others (Johnson & Johnson, 1994; Slavin, 1995). When students are rewarded for the performance of each member of the group, they may be more inclined to help each other see that everyone in the group knows what they are supposed to know and contributes to the group product.

In implementing cooperative activities in their classrooms, teachers report problems with the monitoring of the groups as they work. Effective monitoring of group work means that teachers may have to clarify instructions, review important procedures and strategies for the completion of the assignment, and actually teach cooperative skills when necessary. Our observations showed the teachers in our sample to not explain the procedures for effective cooperation, which could include reviewing team rules and teamwork skills before breaking

up into groups. Regularly reviewing the rules for effective cooperation is certainly needed for the cooperation to work well and particularly in the first years of implementing CL.

Although the teachers in the present study reported feeling reasonably prepared for the implementation of CL, about one-third reported little support. According to Johnson and Johnson (1994), gaining expertise in the use of cooperative learning is, in itself, a cooperative process that requires a team effort. Collegial support groups can encourage teachers to improve their use of CL. Research on effective staff development practices has also shown that the training must include the facilitation and collaborative structures needed to solve various implementation problems (Joyce & Showers, 1995). An important characteristic of collegial support groups is the use of peer coaching or peers helping peers in the implementation of innovations. Peer coaching to facilitate the implemention of CL was not encountered in the schools in our sample and the staff development provided in the schools also did not include such a training component. Future staff development programs for CL should therefore include coaching and the use of collegial support groups for the solution of those problems/questions that may arise during the implemention of CL. A study by Ishler, Johnson, and Johnson (1998) on the long-term effects of a statewide staff development program for CL also showed the receipt of psychological and technical support to be related to greater implementation of CL by teachers.

In the present study, the quality of the student cooperation was assessed using the seven dimensions of cooperation as distinguished by Ros (1994). Ros reported a mean score of 3.1 on a four-point scale for groupwork cooperation among a Dutch sample of teachers. In the present study, we found a mean of 1.9. Particularly, low evaluations were gained on four dimensions: division of work, listening to each other, climate, and decision making. Overall, the quality of the cooperation in the workgroups was rated as rather ineffective. As stated before, however, the teachers did not review team rules or collaborative skills before breaking up the class into groups. The difference between the mean scores in the present study and those in the study by Ros (1994) may also be explained by the fact that the quality of the cooperation between the students in the study by Ros was observed during the performance of a specially constructed standardized consensus task requiring elaborate discussion. In the present study, the students were observed during the performance of a naturally occurring task based on their regular textbooks. The ecological validity of the observations in the present study is therefore considered higher than the observations in the more experimental setting

used by Ros.

In general, the findings from the present study show the practices followed by Dutch teachers for the implementation of CL to be inconsistent with the features of effective CL promoted in the literature. This finding is consistent with the findings of a recent interview study by Antil et al. (1998) who found that a majority of teachers from six American elementary schools were using forms of CL that differed from those described by researcher-developers. The five elements of cooperative learning regarded by Johnson and Johnson (1994) as essential for cooperation were not well implemented. In particular, the basic elements of "positive interdependence," "individual accountability/personal responsibility," "interpersonal and small group skills," and "group processing" received little attention from the teachers.

Research over the past two decades has shown the effectiveness of cooperative learning for the promotion of student learning and social relations to largely depend upon well-prepared, well-trained teachers (Sharan & Sharan, 1992; Slavin, 1997). One important reason for the implementation of CL inconsistent with the features promoted in the literature is an imperfect understanding of what CL really is. In Dutch education, a clear lack of teacher training in the methods of CL can be observed. To fill this gap, we are now designing a staff development program for primary school teachers. This program will be based on the cooperative learning methods of Johnson and Johnson (1994), Kagan (1994), and Slavin (1995). The program is aimed at providing teachers with the instructional competencies needed to apply the methods of CL both at the classroom and school levels. CL is seen as a vehicle for increasing the active involvement of students in learning activities and have students take greater responsibility for their own instruction. CL is also seen as a means for providing teachers with more opportunities for academic interactions with individual students and small groups.

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Table 1

Teacher Ratings of Outcomes of Cooperative Learning

CL impact on students	Response percentages			Rating	
	Not at all/ limited	Moderately	To a (very) large degree	*M*	*SD*
Student achievement	13.0	49.3	37.7	3.26	0.82
On-task behaviour	11.6	27.5	60.9	3.65	0.89
Acceptance of students with special needs	24.6	40.6	34.8	3.10	0.93
Acceptance of ethnic minority students	49.3	34.8	15.9	2.45	1.13
Social skills	2.9	8.7	88.4	4.22	0.78
Self-esteem	5.8	36.2	58.0	3.67	0.80
Attitudes towards school subjects	14.5	47.8	37.7	3.32	0.83

Note. The response percentages are based on a collapse of the five-point scale into a three-point scale; the ratings are based on the original five-point scale: 1 = not at all, 5 = to a very large degree.

Table 2

Teacher Ratings of Structural Characteristics of Cooperative Learning

Structural CL characteristics	Response percentages			Rating	
	Not at all/ limited	Moderately	To a (very) large degree	*M*	*SD*
Reward structure					
Individual rewards for individual performance	71.0	11.6	17.4	2.10	1.17
Group rewards for group product	40.6	29.0	30.4	2.71	1.21
Group rewards for individual contributions	79.7	8.7	11.6	1.75	1.08
Task structure					
Group study with task specialization	31.9	33.3	34.8	3.06	1.06
Group study with group product	30.4	30.4	39.1	3.13	1.04
Resource interdependence	68.1	20.3	11.6	2.15	1.02
Role interdependence	66.7	21.7	11.6	2.26	1.04
Grouping practices					
Heterogeneous groups by ability	23.2	18.8	58.0	3.46	1.07
Heterogeneous groups by gender	15.9	13.0	71.0	3.86	1.12
Heterogeneous groups by ethnicity	53.6	17.4	29.0	2.39	1.48
Heterogeneous groups by social skills	17.4	21.7	60.9	3.58	1.16
Student-selected groups	81.2	10.1	8.7	2.04	0.93
Two-member groups	10.1	26.1	63.8	3.77	1.02
Three- to-four-member groups	18.8	26.1	55.1	3.42	1.01

Note. The response percentages are based on a collapse of the five-point scale into a three-point scale; the ratings are based on the original five-point scale: 1 = not at all, 5 = to a very large degree.

Table 3

Student Ratings of Cooperative Learning

Student perceptions	Response percentages			Rating (n = 346)	
	Not so nice	Nice	Very nice	*M*	*SD*
Positive attitudes towards CL (6 items, α = .62)				2.22	0.18
I think it is ... to work on a task with other kids	6.4	52.8	40.9	2.36	0.59
I think it is ... to explain things to some one of my group	21.7	55.2	23.1	2.00	0.67
I think it is ... when someone from my group explains something to me	15.0	55.8	29.2	2.14	0.64
I think it is ... to hear what kids think	15.8	59.3	24.9	2.09	0.63
I think school is ... because we work in groups	12.1	52.4	35.5	2.24	0.65
I now find subjects that I did not like before ... because we work in groups	4.8	41.7	53.5	2.48	0.59
	Never	Sometimes	Always	Rating (n = 341)	
Effective group interaction (8 items, α = .52)				2.29	0.30
When we work in groups, we ... devide tasks equally	0.8	48.6	50.6	2.50	0.52
When we work in groups, I ... help on the assignment	0.3	20.3	79.4	2.79	0.41
The other kids in the group ... listen to me.	1.4	71.1	27.5	2.27	0.47
I ... tell other kids that they did something good.	17.1	63.5	19.4	2.01	0.59
I ... do my best when working in groups.	2.8	51.0	46.2	2.43	0.55
When we work in groups, the teacher ... tells us to lower our voices. [a]	3.9	75.7	20.4	1.85	0.46
In the group, we ... talk about things that have nothing to do with the task. [a]	20.6	69.4	10.0	2.09	0.55
I ... have problems completing a task when working with other kids in a group. [a]	43.3	54.8	2.0	2.40	0.53

Note. [a] Reversed scored items.

Table 4

Observed Scores for the Dimensions of Cooperation Scale (29 observations)

	Rating	
Dimension of Cooperation	*M*	*SD*
Argumentation	2.00	1.56
Division of work	1.10	0.98
Listening	1.41	0.82
Cognitive stimulation	2.34	0.86
Social stimulation	2.28	0.70
Climate	1.55	0.99
Decision making	0.90	1.05
Total (7 items, $\alpha = .73$)	1.88	0.66

Note. Mean scores are based on a four-point scale: 1 = low, 4 = high.